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Citrus Insect Control For March, 1957

Seasonal Changes In The Juice Content of Pink-Red Grapefruit During 55-56

Mutual Says More Advertising Money "Absolutely Essential"

Isle Of Pines Citrus

Nucellar Trees In Relation To Budwood Certification

Mutual Sees Good Prospects For Remainder of Season

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VOL. 38 — NO. 3 MARCH, 1957 BARTOW, FLORIDA

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R. M. Pratt

Citrus Insect Control

R. B. Johnson

For March 1957

R. B. JOHNSON*
R. M. PRATT
W. L. THOMPSON
Florida Citrus Experiment Station, Lake Alfred

W. L. Thompson

Purple scale populations are increasing slowly and will continue to increase until the peak is reached in July. However, the present population is much below average, and barring a late cold snap, the population will be below average in the post-bloom period.

On the other hand, red scale activity is high, as a result of an early hatch, and infestations are expected to be above average in the post-bloom period.

Purple mite infestations are moderately high in some districts at this time, but the average infestation in the spring months is expected to be much lower than in the last two years. Infestations of Texas citrus mite were also common in late February. It is not known with certainty if infestations will continue to increase, but it is assumed that their abundance will parallel that of the purple mite.

Rust mite infestations have been unusually high in January and February. The population will decline in March, but is expected to be above average in the post-bloom period.

Six-spotted mites will not be a general problem this year, but there are always a few groves where control is required. Mealybug infestations will be about average.

Aphid infestations will be more abundant than usual, especially on young trees and trees injured by frost.

More reports of heavy infestations of soft brown scale are being received than is usually the case. If sooty mold is unusually abundant, look for these scales on twigs, leaves and fruit.

SPRAY PROGRAM

Although spring and the new growth have started early this year, most groves will probably not be ready for the post-bloom spray before late March or even early April. However, groves that were damaged by cold weather and, to a lesser extent, well-irrigated groves, may be ready for the post-bloom spray by the middle of March. These groves may be sprayed when about 90 per cent of the petals have dropped without much danger of injury to foliage. In the meantime, pre-bloom spraying should be kept to a minimum to prevent injury to new foliage and the more retarded groves should be checked to see what treatments will be needed when the main post-bloom period arrives.

Although the post-bloom spray is primarily for the control of rust mite and melanose, other problems may be present in some groves. Scale insects, for example, may be sufficiently numerous to require control. Purple and Florida red scales will be moving onto young fruit and new foliage during the post-bloom period. If these scales are numerous on old foliage or fruit, the migration may result in serious red scale damage to new foliage or purple scale populations high enough to be difficult to control later. So, if scale is plentiful on old fruit and/or foliage, it is advisable to use a post-bloom scalicide. Post-bloom scalicidal sprays, however, should not be expected to replace the regular summer scalicidal in most areas.

In the Indian River area from Sebastian southward, dormant or post-bloom applications of scalicides are very effective against purple scale and may be used in preference to summer applications.

In addition to scalicides in some groves, it may be necessary to include one or more nutritional compounds for the correction of such deficiencies as zinc, manganese, molybdenum, and boron. Lead arsenate, may also be needed on grapefruit and it may be necessary to include a miticide for purple mite, Texas citrus mite or even six-spotted mite.

Scale Control: The selection of a post-bloom scalicide will depend upon the condition of the grove to be sprayed as well as the control problems that accompany the scale. Oil emulsion is safer than parathion on succulent foliage up to 3 to 6 inches long and is an excellent miticide. It does, however, have certain drawbacks. Oil emulsion does not effectively control rust mite, is a shock to trees with inadequate soil moisture, and cannot be combined with more than two metallic compounds. The inclusion of too many solid materials in an oil spray may cause the emulsion to break or flocculate in the tank and result in poor control or even damage to the trees and fruit.

The mixture of oil emulsion, a neutral copper compound and lead

(Continued on page 16)

SCALE AND MITE ACTIVITY BY DISTRICTS*

District	Purple Scale	Red Scale	Purple Mite	Rust Mite on leaves	Rust Mite on fruit
West Coast	3.34	.77	2.28	1.60	1.88
Indian River	3.67	3.71	1.53	1.23	1.00
Upper East Coast	4.13	—.13	1.38	.87	.33
Gainesville	3.50	.50	.50	2.00	——
Orlando	2.83	.35	.54	1.31	1.08
Brooksville	3.14	0	1.72	1.90	1.33
Ridge	4.26	3.61	1.40	1.58	1.77
Bartow	4.51	3.70	2.89	2.67	2.80
State Average	3.60	3.31	1.43	1.57	1.48
Last Year	3.31	2.39	1.41	1.02	.78

* Third week in February. Activity is computed from populations, amount of hatching of scales, and number of groves with increasing or decreasing infestations. Activity is considered high if above 4.0 for purple scale, 3.0 for red scale, and 1.5 for mites.

* Written February 21, 1957. Reports of surveys by Harold Holtsberg, Fort Pierce; J. W. Davis, Tavares; K. G. Townsend, Tampa; T. B. Hallam, Avon Park; and L. M. Sutton, Lake Alfred.

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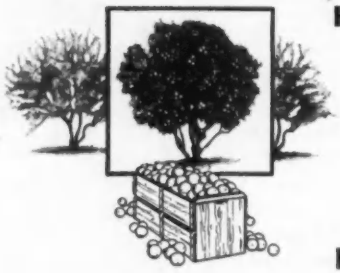

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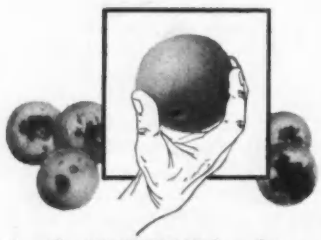

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Seasonal Changes In The Juice Content Of Pink-Red Grapefruit During 55-56

DR. E. J. DESZYCK AND
DR. S. V. TING
FLORIDA CITRUS EXPERIMENT STATION, LAKE ALFRED

FROM PROCEEDINGS OF FLORIDA STATE HORTICULTURAL SOCIETY

Pink and red grapefruit in the early season does not always meet the minimum juice requirements as established by the Florida State maturity laws (3, 4). Becasue of the

DR. E. J. DESZYCK

low juice content, harvest of these two varieties is often delayed, especially since the adoption of higher juice standards; these being raised approximately 10 percent during August 1 to October 15, and approximately 5 percent during October 16 to Novemebr 15. For the remainder of the season, the lower juice requirements defined by the Citrus Code of 1949 remain in effect. The relatively high juice required in the early season delays harvest of much of the pink and red grapefruit until the period of low juice standards of November 16 to July 31 during each season.

Several factors influence juiciness of citrus fruit. Generally, juice content varies markedly with and during seasons; it is relatively low in the immature fruit and high in the fully ripened fruit late in the season. High rainfall and irrigation tend to raise juice volume, such factors accounting for variations from year to year. Still other factors are: location, variety, rootstock, age of trees, time of bloom, shape of fruit, and certain cultural deficiencies. Oil (7) or arsenic (1, 2) sprays have not been found to affect significantly the amount of juice in the fruit.

The Florida Citrus Commission, has been conducting a four-year survey of red and pink grapefruit to obtain a better understanding of the internal quality and maturity characteristic of these varieties. When the survey was begun in the fall of 1953, the soluble content in much of the fruit did not meet standards; however, since the juice requirements were raised in 1955, juice content became the limiting factor in maturity.

DR. S. V. TING

(1) Cooperative publication by the Florida Citrus Experiment Station and the Florida Citrus Commission. Florida Agricultural Experiment Station Journal Series No. 565.

Therefore, a study of juiciness was included during the 1955-56 season.

A preliminary report is here presented for the purpose of ascertaining the juice content of pink and red grapefruit of three sizes grown throughout the State during the 1955-56 season. Special emphasis was placed on its relationship to legal juice requirements. In addition to seasonal changes in juice content, the variations among samples during each sampling period as well as the daily increases in the juice are included.

TABLE 1. Percentage of grapefruit samples picked throughout the State attaining juice standards from September to December, 1955 (size 96)

Juice Requirements	Sampling Period						
	September	October		November		December	
	15-30	1-15	16-31	1-15	16-30	1-15	16-30
ml/6 fruit				Percent			
1110 (a) and above	7.7	32.1	46.5	76.8	85.0	81.1	96.3
1080 (b) and above	12.8	41.9	53.2	84.5	85.0	86.9	97.3
1020 (c) and above	31.7	69.5	81.3	93.6	95.0	90.8	100.0
Below 1020	68.2	30.4	18.7	6.4	5.0	9.2	-0-

(a) Minimum juice requirement for Aug. 1 - Oct. 15
(b) Minimum juice requirement for Oct. 16 - Nov. 15
(c) Minimum juice requirement for Nov. 16 - July 31

EXPERIMENTAL

For this survey, 137 groves were selected throughout the citrus area of Florida, including the Ridge section, and the East and West coasts. Of the total number, 68 groves were Ruby red and 41 pink seedless on rough lemon, and 20 groves were red and 8 pink on sour orange rootstock. Fruit sampling was similar to that used commercially; that is, each sample consisted of six fruit of one size picked from different trees. Three sizes (96, 70, and 54) were collected from tagged trees at intervals of 14-16 days during the 1955-56 season, extending from September to March. Juice was expressed at the rate of 40 fruit per minute using a Food Machinery In-Line Extractor (5) with a flush setting, ½ inch orifice tube, strainer tube of 3/32 inch openings, and a cup of six inches in diameter. The juice was then passed through a Chisholm-Ryder finisher of the tapered-screw type equipped with 0.033 inch perforated screen, weighed and expressed as milliliters in each sample of six fruit. In compiling the data the average juice volume for each period of 14-16 days was used.

Table 2. The average juice content and standard deviation for grapefruit of size 70 for 13 sampling periods during 1955-56.

Sampling Period	Juice (ml/6 fruit)	Standard Deviation
Sept. 15-30	1171	122.2
Oct. 1-15	1332	125.5
Oct. 16-31	1392	126.7
Nov. 1-15	1465	122.7
Nov. 16-31	1495	114.7
Dec. 1-15	1541	126.2
Dec. 16-31	1571	125.7
Jan. 1-15	1590	108.2
Jan. 16-31	1603	139.7
Feb. 1-15	1568	104.7
Feb. 16-29	1585	103.0
March 1-15	1604	109.7
March 16-31	1609	110.7

RESULTS AND DISCUSSION

In general the average juice content of pink and red grapefruit of three sizes on rough lemon and sour orange rootstocks gradually increased with the advance of the season, with some exceptions (Fig. 1). Some irregularities were apparent for size 54 fruit on sour orange rootstock. In addition the juice volumes in the fruit of the three sizes decreased slightly during January and February (Fig. 2-A).

Rootstock apparently does not influence juice content in white varieties of grapefruit (6). However in the pink and red varieties, significantly more juice is found in fruit grown on sour orange than on rough lemon rootstock during the latter part of the season (Fig. 2-B). This variation was first apparent in December for size 54 fruit, and during March for size 96. On the average for the season more juice was found in fruit on sour orange than on rough lemon rootstock.

The seasonal trends in the juice of the two varieties and three sizes are shown in Fig. 2-C. The red variety contains significantly higher juice content than the pink grapefruit during the latter part of the season, January to March. However, it is similar in the two varieties during the early season from September to January. On the average for the

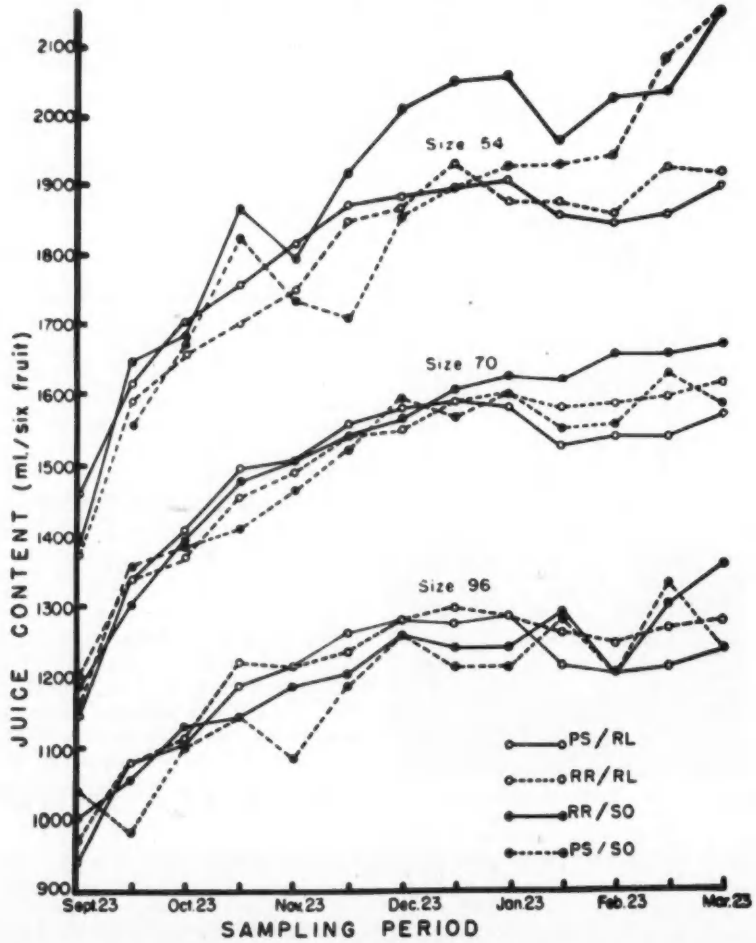

Figure 1: Seasonal changes in the average juice content of pink (P. S.) and red (R. R.) grapefruit of three sizes (96, 70, 54) grown on sour orange (S. O.) and rough lemon (R. L.) rootstocks during 1955-56.

season Ruby red fruit contains more juice than the pink variety.

The percentages of samples of size 96 grapefruit meeting the legal juice requirements through December are listed in Table 1. Very little fruit can be picked under the 1955 juice standards, since only 7.7 percent of the samples attained sufficient juice (1110 ml.) at that time. During October 1 to 15, 32.1 percent of the fruit met the strict regulations. When the requirement is lowered to 1080 ml. during October 16 to November 15, 63.2 percent of the fruit met the standard during the first part of this period, and 84.5 percent during the latter part. Although the lower standard is restrictive, the majority of the samples acquired adequate juice. After November 15 when the requirement is lowered to 1020 ml. most of the fruit had enough juice for harvest. The size of the fruit appears to have no influence on the time of attainment of the high juice standards effective through October 15 since approximately one-third of the samples of each size met the standards during this period.

The average juice content and the standard deviations for size 70 fruit for 13 sampling periods are shown in Table 2. The standard deviations are generally higher during the earlier part of the season than during the later part with some exceptions. The average juice and the standard deviation can be helpful in ascertaining the range distribution about the mean, especially if used in the early season. For example, during September, the average juice content for size 70 fruit was 1171 ml. with a standard deviation of 122.2 ml. Of the samples, approximately one-third fell between 1171-1293 ml., and one-sixth fell above 1293 ml. It is evident that with the juice requirement of 1380 ml., less than one-sixth of the samples met this high requirement, and therefore fruit cannot be picked because of the low juice volume.

The daily average increases in juice volume for one fruit of each size during sampling periods from October through December, are shown in Table 3. Large daily increases for all three sizes occurred during the October 8 sampling period, with smaller amounts during the remaining periods. With sizes, the highest daily increase in juice was found for size 54, and the lowest for size 96. On the average the juice increased by 0.6, 0.7, and 0.9 ml., for sizes 96, 70, and 54, respectively. An estimate of the time of meeting juice regulations can be made by knowing the average daily increase in the juice. Of course, these values will vary with location, seasons, and other factors but can be useful as a guide to the time of harvesting.

Table 3. Average daily increase in juice content per fruit of grapefruit of three sizes (96, 70, and 54) during October to December, 1955

Sampling Period	Size		
	96	70	54
	ml/fruit/day		
Oct. 1-15	1.1	1.7	2.1
Oct. 16-31	0.5	0.5	0.8
Nov. 1-15	0.9	1.0	0.8
Nov. 16-30	0.1	0.3	0.4
Dec. 1-15	0.4	0.5	0.8
Dec. 16-31	0.4	0.2	0.4
Average	0.6	0.7	0.9

SUMMARY AND CONCLUSIONS

A preliminary report of the juice content of seedless pink and red grapefruit of sizes 96, 70, and 54, grown on rough lemon or sour orange rootstocks is presented. The samples were collected twice monthly from 137 groves during the 1955-65 season. In general, the juice con-

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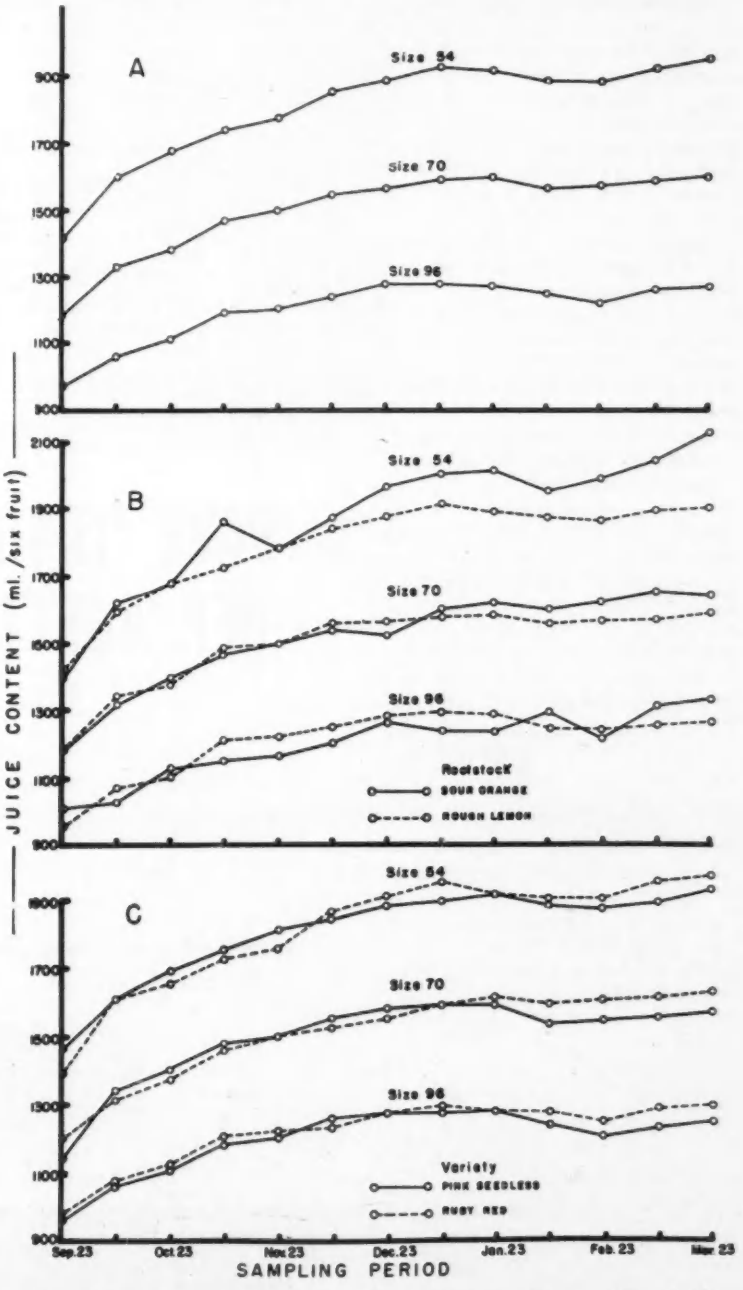

Figure 2: Seasonal changes in the average juice content of two varieties of fruit of three sizes grown on two rootstocks during 1955-56.

Mutual Says More Advertising Money "Absolutely Essential"

An increase in orange advertising funds "is an absolute necessity—now is the time to plan for the future," according to Florida Citrus Mutual.

In another article of a series in its membership publication supporting the proposal that the orange advertising assessment be increased from three to five cents per box, Mutual stresses that "the Florida Citrus Commission, an entity of the State of Florida, created at the request of the growers and endowed with the responsibility of spending the growers' money effectively and efficiently in order to bring about profitable returns, must have additional funds with which to work.

"Additional uses for oranges must be exploited. Additional markets must be opened. Additional export effort is waiting on us. Additional research is on the way. Additional manpower and brain-power is available — but it takes money to make money."

Mutual said it intended to "follow through" on the expenditure of the advertising funds.

"Progress cannot be, must not be, thwarted by personal ambitions," the article states, "nor by secret agreements between agencies or between states. Florida is big enough and young enough to stand up without the support and without the instructions of outsiders. It is time now for leadership — not followship."

Mutual points out that the new legislative session "is close at hand and legislation for increasing advertising funds should have 100 percent grower and industry support and 100 percent support of any kind that everyone can offer for a growing and prosperous future."

The article emphasizes that "growing Florida citrus is big business," which has had not only a "growing revolution" but also marketing, merchandising and advertising revolutions.

"This over-all bigness has come so quickly that actual planned progress has not been what most would desire to see," the big cooperative points out.

"No longer can the Florida grower be content with growing oranges — he must know, understand and be able to exert his influence in all matters affecting the oranges he grows, from the tree to the consumer. No longer can he sit back and let others run things.

"In fact, he no longer is sitting back because, through Mutual, the first really successful, long-lasting grower organization, he can take his stand, work out his problems, and plan his progress.

"He can face up to the 'bigness' of the industry."

SEASONAL CHANGES IN THE JUICE CONTENT OF PINK AND RED GRAPEFRUIT DURING 55-56

(Continued from Preceding Page)

tent increased with the advance of the season, increasing approximately one-third from September to March. In the latter part of the season, the red fruit contained more juice than the pink variety. Likewise, fruit on sour orange rootstock contained more juice than that grown on rough lemon. On the average, the red grapefruit on sour orange had the most juice while the pink variety on rough lemon had the least amount.

As far as meeting the high juice standards in effect from August 1 to October 15, approximately 8 percent of the fruit in September and 32 percent in October met the strict juice regulations. At the time of the medium juice requirements from October and November, respectively. After November 15, most of the fruit met the low juice standards then in effect.

The variations in the juice content for each sampling period as well as the daily increases in juice volumes are presented.

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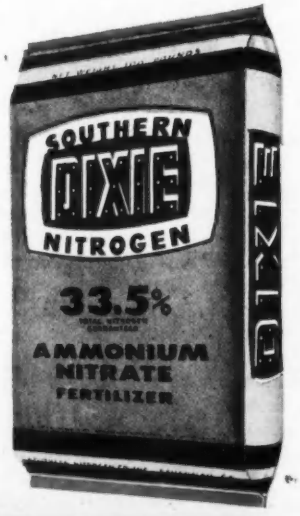

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Isle Of Pines CITRUS

By Herb Mosher

Citrus growing as it is done in foreign countries, in the islands, or elsewhere outside of Florida is always of interest to us here. I remember the late L. A. Hakes once telling a group about the origin of the original "Temple" orange tree — it was, he said, a tree imported from Jamaica. So when the new orange, the Temple, was noticed for the first time on this tree, among various things done by interested horticulturists was to cause the root of the tree to "throw up" a sprout. This sprout eventually produced grapefruit! Proving, of course, that the original Temple tree was a budded tree, and so just how or where the variety actually originated, or first appeared, is unknown to this day.

Some little time ago I fell to talking with Mr. M. R. "Buck" Buckalew, who is very much alive and kicking these days in Vero Beach, where he is executive secretary of the Indian River Citrus League. Citrusman Buckalew then and there agreed to give me a written account of his trip, along with a party of leading growers and shippers, to the Isle of Pines. Weeks passed, but finally the manuscript was completed.

The history of this tour is that as a gesture of good will the Florida citrus regulatory bodies, the Growers Administrative Committee and Shippers Advisory Committee, went to the Isle of Pines, south of Cuba, to meet with the grapefruit growers of the island and to discusse the problems peculiar to that area. This trip was under the auspices of the U. S. Department of Agriculture. The G. A. C. - S. A. C., operating under a U. S. Department of Agriculture Marketing Agreement and Order regulating handling of citrus grown in Florida, set grade and size regulations for the interstate shipment of citrus. Any export of citrus from Cuba must comply with such regulations as set up by the Florida control committees.

The citrus growers on the Isle of Pines reported difficulty in meeting these regulations. To better understand their problems, the committee made a plane trip to the Isle of Pines, accompanied by some leaders in the industry who were not members of these committees. Mr. Buckalew went along though not as an official member of the group. His observations will be of great interest to citrus people everywhere.

M. R. BUCKALEW

"Included in the trip was a complete tour of the grapefruit groves with personal inspection of trees and fruit. Production methods were discussed at length with each caretaker. Several packing houses were inspected. After this tour, a meeting was held with quite a few of the growers in the town of Nueva Gerona. At this meeting, it was explained that the committees were unable to do much in the way of aiding the Isle of Pines growers. The impressions of this trip, which I gathered, are strictly my own personal observations," Mr. Buckalew told me.

"The export of grapefruit from the Isle of Pines has dropped in the past five years, until this year, the estimate is from 40 to 50 thousand boxes. There have been a few small plantings in the last few years, but nothing extensive. Therefore, as some of the older groves are being abondoned, there is a sharp drop in the total acreage.

"The cost of production is low, but the out-of-date methods of operation, plus the transportation costs, run the per box cost to from $4.00 to $4.15. This means that the grower must have his fruit sell in New York for

(Continued on Page 21)

Group of Florida citrus leaders on good will visit to the Isle of Pines

Nucellar Trees In Relation To Budwood Certification

During the past few years much has been said and written regarding nucellar trees and their potential importance in the improvement of citrus bud-strains.

This is a brief outline of known facts regarding what is probably the largest planting of its type in existence, the Hughes Nucellar Valencia grove in West Orange County.

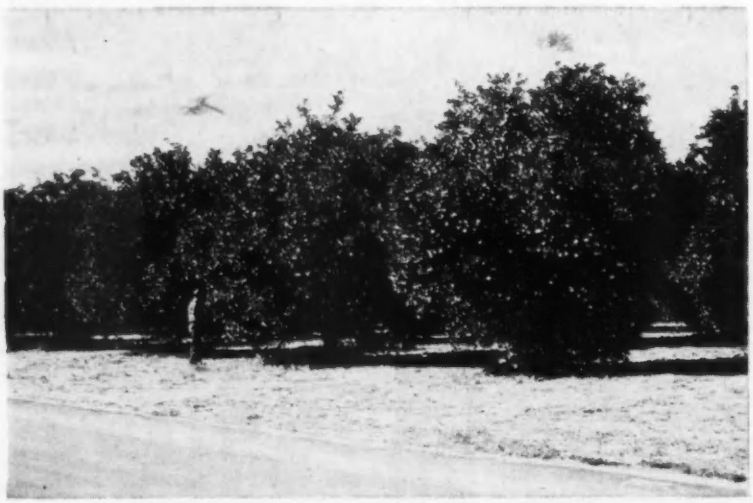
This planting consists of 1172 (16 acres) Valencia seedlings planted in 1940. The trees were grown from seed taken from commercial fruit and lined out in the grove on 25x25 foot centers. The whole top of each tree was cut off about 18 inches above ground level to reduce height and to encourage low habit of growth. All the trees show great vigor, dense foliage, and rich deep green color. They have demonstrated considerable drought and cold resistance. No symptoms of Psorosis have been found on any of the trees to date. They also may prove to be free of Xyloporosis and Exocortis. Eight of 22 trees tested are positive for Tristeza, presumably from insect transmission.

GERALD G. NORMAN
INSPECTOR IN CHARGE
BUDWOOD CERTIFICATION PROGRAM, STATE PLANT BOARD

No resets, no missing trees, no stunted trees, solid uniform planting as far as the eye can see. The limb in the foreground has been pulled down from the top of the tree by the weight of the fruit it is carying.

It should be noted that one of the great disadvantages of Valencias when used as seedlings is their late maturity, that even at the age of 10 years, the entire block was producing only 258 boxes or less than 1/5 of a box per tree. However, this in no way affects the maturity of trees budded from the wood of these seedlings since maturity and ability to produce has already been established and the period of juvenility outgrown in the seedling trees themselves.

This year's crop indicates that after 17 years of growth they are beginning to come into full maturity. If these trees continue to bear increasingly high yields for the next several years, they will almost certainly set a record for Valencia production in Florida. The table below gives actual yield records for the past eight seasons. The estimate for the 56-57 season is conservative and does not include an estimated



View from south side showing uniformity of tree size and growth

10 percent loss due to fruit drop from drought.

SEASON	NO. BOXES
49-50	258
50-51	544
51-52	1266
52-53	2678
53-54	5231
54-55	2838
55-56	2830
56-57	8000 plus estimated
Total Trees	1172
Average Box Per Tree	6.8
Average Bushels Per Tree	10.9
Average Boxes Per Acre	500

(See Additional Photo On Next Page)

USDA PROPOSES REVISING REGULATIONS ON INSPECTION OF PROCESSED FRUITS AND VEGETABLES

The U. S. Department of Agriculture announced on January 31 that consideration is being given to revising regulations governing inspection and certification of processed fruits and vegetables, processed products thereof, and certain other processed food products.

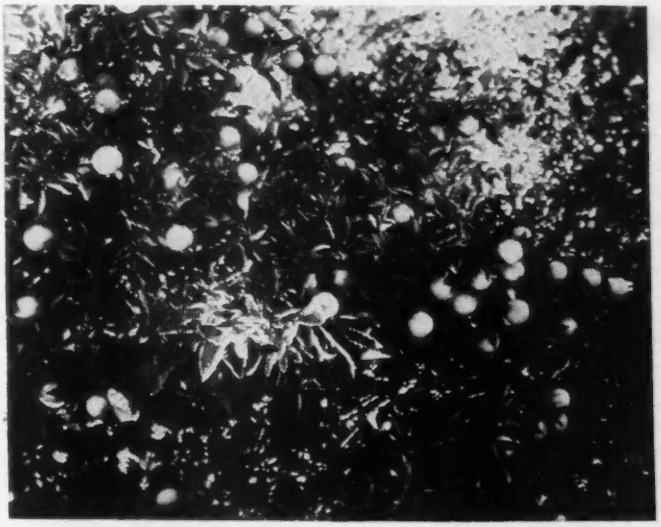
Proposed changes include eliminating present tables and minimum sampling rates and substituting tables of single sampling plans and alternate multiple sampling plans based on statistical procedures. These sampling plans indicate the number of units of sample to be selected from different size lots of various processed food items and, in most instances, provide levels of acceptability of the lot for grade, application or contract.

The proposed changes in the regulations also include a procedure for establishing the grade of a lot of processed food products when inspection is based on a United States grade standard in which a scoring system is in effect. This procedure would replace the procedures contained in many current grade standards concerning tolerances for officially drawn samples.

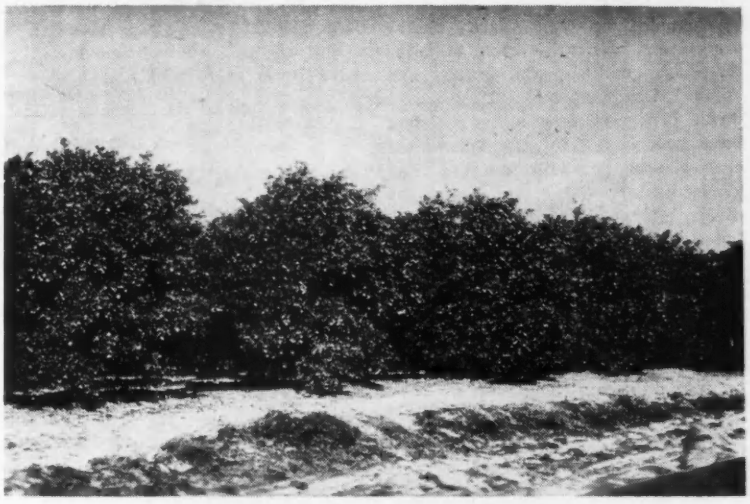
The new sampling plans and acceptance procedures would provide a more equitable basis for sampling and for determining the grade of a lot of processed foods or its compliance with a specification.

The proposed revisions appears in the Federal Register dated February 8. 1957.

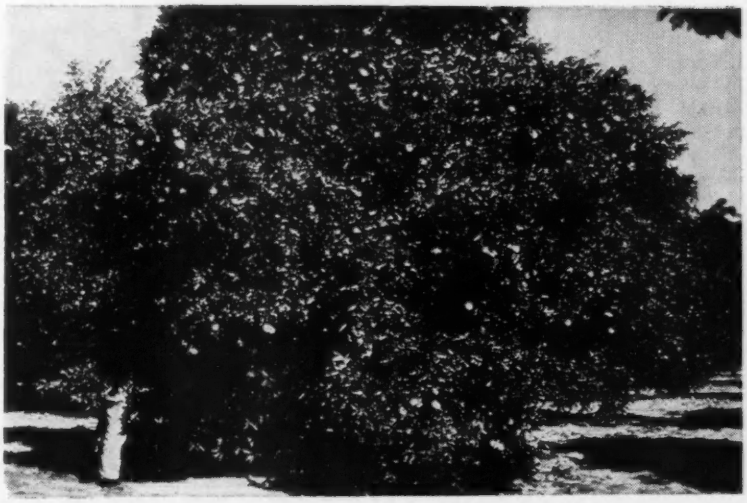
Three giant conservation pools totaling 1,340 square miles are part of the Central and Southern Florida Flood Control District plans.



Looking up under overhanging limbs. This is typical



Trees in slight wilt in mid-afternoon. These trees have had only .2 of an inch of rain since November 2nd



Loaded with fruit (this tree is carrying about 12 boxes) and suffering from dry weather — leaves wilting but still carrying a tremendous crop

Mutual Sees Good Prospects For Remainder Of Citrus Season

Several favorable merchandising factors exist which should keep the retail movement and prices on oranges and grapefruit, both fresh and processed, at satisfactory levels for the remainder of the season, according to Florida Citrus Mutual's northern market representatives.

Robert W. Rutledge, Mutual general manager, released on January 28 reports just received from the cooperative's market men — Charles H. Boyles in New York City, Thomas P. Boyd in Philadelphia, and Howard Heisey in Chicago.

Most optimistic of the trio was Byrd, following a careful survey of the big Philadelphia market and surrounding territory.

"Competitive fruits are rather scarce and generally high in price for good quality pears, grapes and apples," Boyd reports. "This leaves citrus in a good spot and we should have good going for the balance of the season on both oranges and grapefruit, providing we keep the quality standards of the fresh high, for the fresh market has clearly demonstrated time and again it will not take "off-quality" merchandise.

California has 4,000 fewer cars of navel oranges to sell than at this time a year ago, Boyd pointed out.

"They will stretch these out, making for very high prices which should definitely help our market. Most of the Valencias from Central and Northern California will be exported and it will probably be the end of May or early June before we see any Southern or Central California Valencias, leaving the market pretty much to ourselves."

Frozen concentrate is moving well for this time of year, the Philadelphia market man said, with the ex-warehouse and retail prices levelling off at a point which is conducive to good movement.

"Retail prices have become more uniform," Boyd said, "and there is not the big spread between advertised brands and private labels, with the 'big four' selling at six cans for 99 cents and private labels at 89 cents.

"Economic conditions are good, wages and employment at an all-time high and we should enjoy good prices on oranges and grapefruit for the remainder of this year's crop."

Boyles in New York reported the post-holiday selling slump is "about over. Cold weather and snow have retarded movement for the past week. Fresh prices have been lower but show signs of strengthening. Increased sales at the FOB level or sales direct to handlers are responsible for light auction demand."

Boyles believes fresh Florida grapefruit "will be in good demand, especially Indian River fruit at auction. The grapefruit spoon promotion, if properly supported, will increase sales and prices."

The New York market expert expects "fresh citrus prices and movement to increase. If shippers use good judgment, orange and grapefruit prices should be higher. This also applies to frozen concentrate and chilled juice. Economic conditions are about the same, with chain and supermarket sales increasing as a result of stiff competition involving even lower store profits."

Chicago's Heisey said the marketing outlook was somewhat blurred at the moment but "in talking with much of the fresh fruit trade, I fiud handlers both at wholesale and retail optimistic about the distribution of the rest of the grapefruit crop. We should be able to ride out the rest of the season on the crest of the market."

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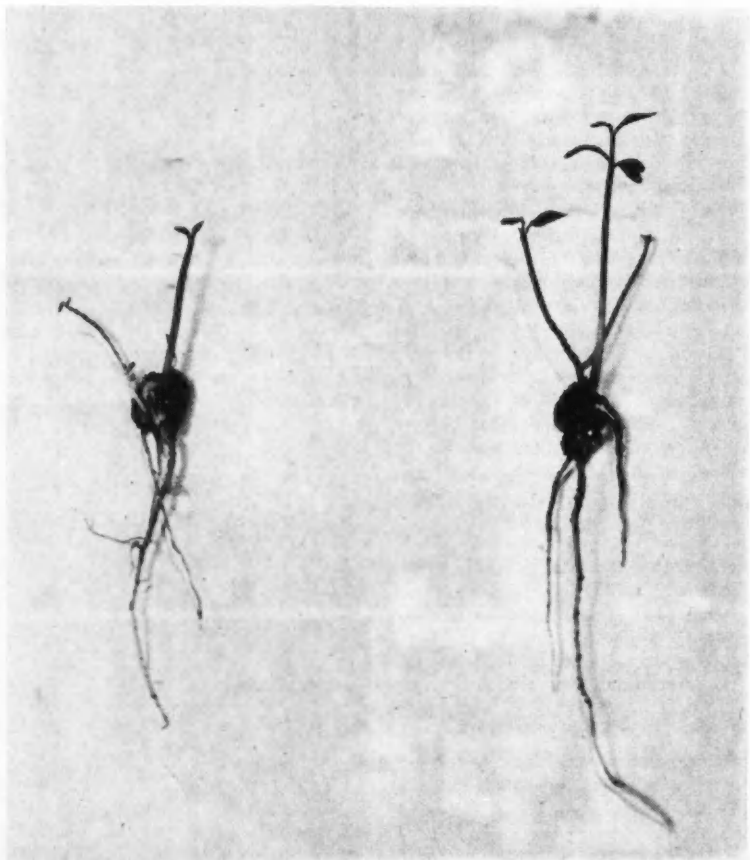
NUCELLAR EMBRYONY



These specimens demonstrate nucellar embroyony (two or more seedlings arising from a single seed) in citrus. In all probability one of the seedlings from each seed is sexual and the others are nucellar and, therefore, will be identical with the mother tree except for bud variation. It is possible that all are nucellar since these seedlings are frequently so vigorous as to crowd out the normal embryo.

Questions And Answers

This new feature of The Citrus Industry is provided by Leonard Rabin and is being offered on a test run in this publication. Rabin was born in Philadelphia but moved to Florida at the tender age of three years He is a graduate of the University of Florida, where he majored in horticulture. Presently he lives in Lakeland where with his brother he is in the grove caretaking business.

This publication presents these queries and answers solely as the responsibility of the author, but will be glad to receive any comments whether they coincide with the opinions of the author, or may be in direct contradiction with the opinions of the author.

Readers are invited to submit questions, if they desire, to The Citrus Industry, P. O. Box 120, Bartow, Florida

1) When is the best time to spray my Duncan grapefruit with arsenic to insure maturity? Also how much should I use to bring them to maturity as early as possible?

A) This information is contained in the BETTER FRUIT PROGRAM for 1957. The most effective time is 1 to 6 weeks after bloom. Use 1.25 lbs. of lead arsenate per hundred gallons for a high ratio in the early season.

* * * *

2) How can I determine the number of trees per acre in my grove?

A) Measure the spacing between your trees (both ways). Multiply these two numbers together and divide the product into 43,560 (No. of sq. feet in an acre). For example: a 25 by 30 setting would contain 58 trees per acre.

* * * *

3) Can the banana and pineapple plants I have near my house harbor the burrowing nematode? Also what about my prize Ixora? My house is situated right in the middle of my grove.

A) Yes, all three of the plants you mentioned may be hosts for the burrowing nematode.

* * * *

4) Somebody told me that the gum pockets in my misshapen Marsh grapefruit meant boron deficiency. When is the proper time to spray on boron and how much should I use?

A) Use 1 pound of borax per 100 gallons of water. Also put ¼ pound of hydrated lime in the tank to precipitate it. Spray it on only once a year in one of your sulfur sprays.

* * * *

5) Do the very thorny branches on my young orange trees (2 years old) indicate that the budwood used was from a thorny tree? Will they eventually grow into thorny mature trees?

A) I do not think that will be the case. I have seen young orange trees display sharp thorns and as they grew older developed into mature trees free of thorns. I attribute the cause of these thorns to the constant and succulent growth of immature trees. This is analgous to the thorny water sprout in the thornless mature tree.

HD WOMEN IN SEMINOLE MAKING CERAMIC WARES

Not only are cookies served to visitors by home demonstration women in Seminole County apt to be home-made, but so are the cookie jars. On the table may be a bouquet in a do-it-yourself vase. The reason: more than sixty women have been learning how to make ceramic ware, including vases, pins, TV trays, cookie jars and ash trays. Miss Myrtle Wilson, home demonstration agent, has had charge of the popular classes.

in its 75th year...GLEN OFFERS MORE!

Planning a new grove in the next few years? Advance orders already placed with Glen Saint Mary indicate a tight supply of new stock for several years to come.

Better make your plans now, and know that the necessary young trees will be delivered when you need them.

GLEN SAINT MARY NURSERIES COMPANY

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Diamond Jubilee Year

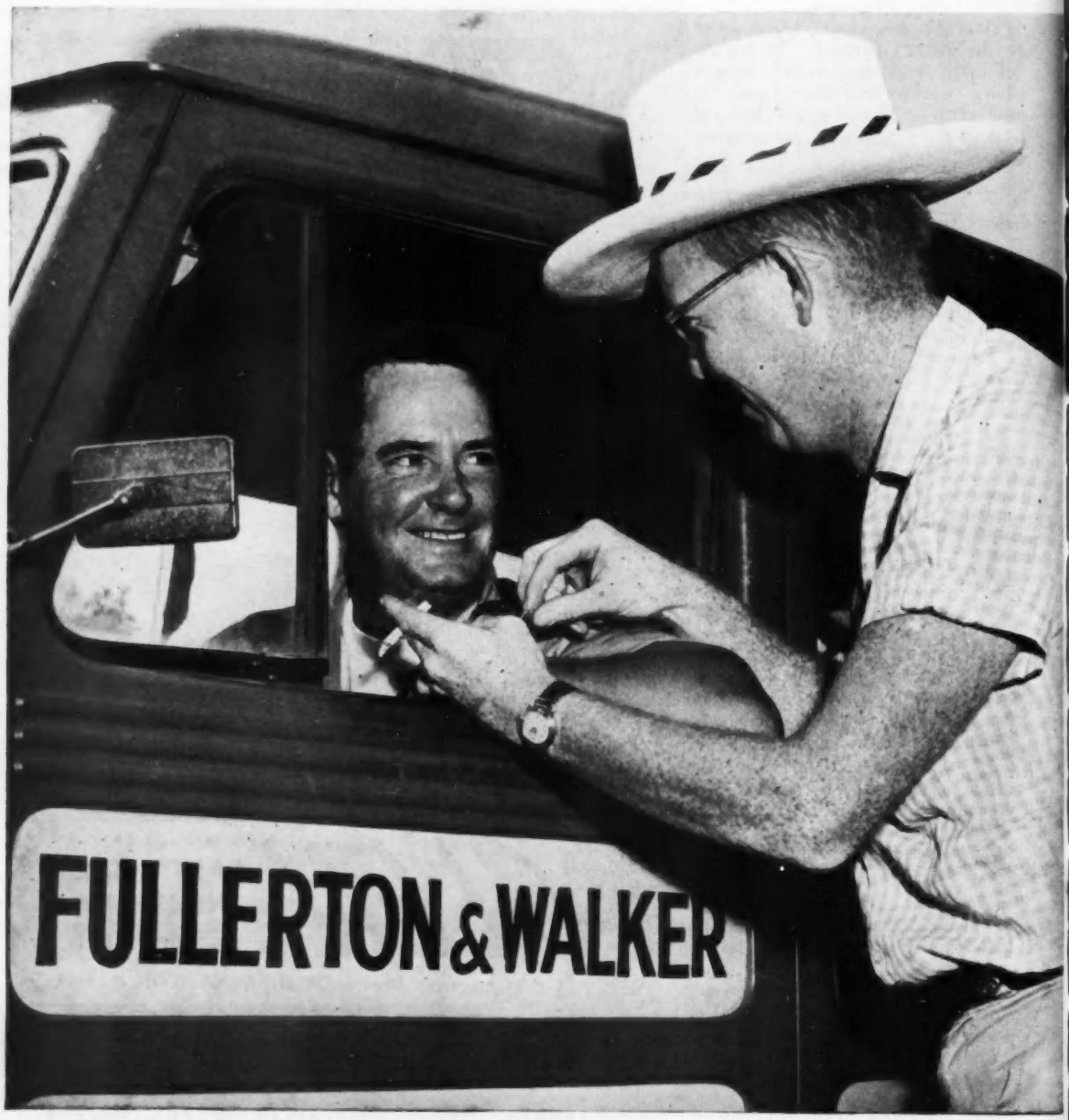
"DEPENDABLE SINCE 1882"

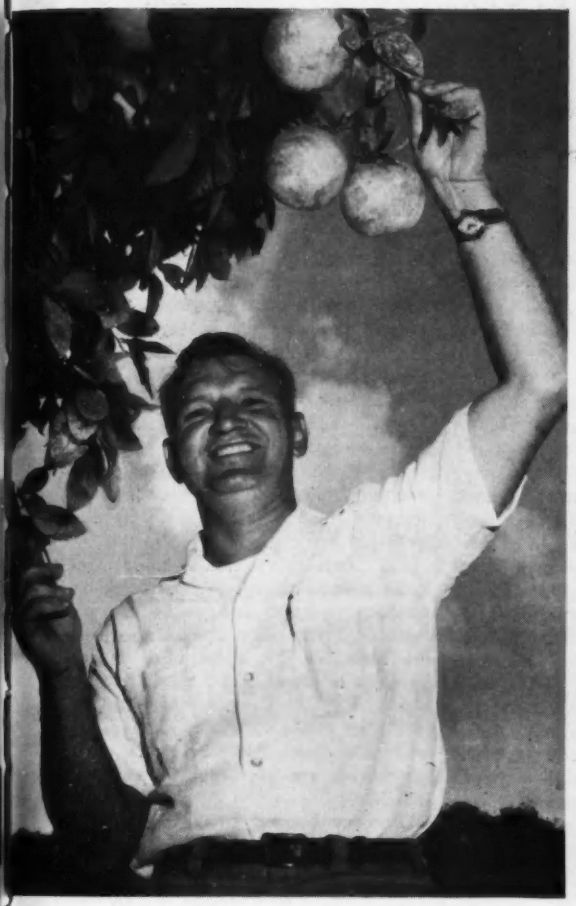
Largest Citrus Nurseries in the World

"Best results of any oil we ever used,"

states Lincoln Walker of Fullerton and Walker, citrus grove caretakers (pictured below, left, with ORTHO Fieldman J. S. Murphy), Lake Wales, Fla.

"With ORTHO N-P 90 we got the best results of any oil that we have ever used," says Mr. Walker. "There was not any leaf droppage where N-P 90 was applied. These scientific methods of control that the ORTHO people recommend are very helpful for us growers."





"Scale control has been excellent (with an ORTHO program)," says John C. Zoffay, (above), citrus grower of Frost Proof, Florida. "The mite control using 2½ - 3 gallons of VOLCK Soluble per 500 gallon tank has been outstanding."

"ORTHO products and ORTHO technical field service have been of great value to me," says B. B. Osgood, Osgood Groves, Montverde, Lake County, Florida (pictured above, left, with ORTHO Fieldman John Nowell). "ORTHO Fieldmen have been very frequently available to me for technical service. I, as an individual grower, appreciate their personal interest in me and my crops."

Leading Florida Citrus Growers use a *complete* ORTHO program—here's why:

When you buy the ORTHO program, all the personal, on-your-ground technical advice and services of your ORTHO Fieldman are provided gladly and without any extra charge. Too, with ORTHO, you're associated with the leader. ORTHO Research first developed highly refined petroleum oil sprays in the form of new type emulsions and ready-mixes. Under such brand names of VOLCK Soluble, and FLORIDA VOLCK these oil sprays today are known and respected by growers the world over. Include these top-choice oil sprays in your control program, too.

ON ALL CHEMICALS, READ DIRECTIONS AND CAUTIONS BEFORE USE

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Contact these ORTHO Fieldmen:

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Lake Alfred—J. S. Murphy, Jr.
Lakeland—Jean E. Mabry
Leesburg—Charles Ashley
Orlando—Cliff Sutton
Orlando—John Nowell
Perrine—Dick Acree
Plant City—Webster Carson
West Palm Beach—Luke D. Dohner
West Palm Beach—Perry L. Sparkman

CITRUS INSECT CONTROL FOR MARCH, 1957

(Continued from page 3)

arsenate is practical on grapefruit. Where more than two metallic compounds are needed, however, it is preferable to use parathion and either ovex or aramite for purple mite or Texas citrus mite.

If oil emulsion is selected as the scalicide, use 1.3 percent actual oil or 0.7 percent actual oil plus 1.0 pound of 15 percent parathion. Apply oil sprays to oranges before the average fruit is more than ½ inch in diameter to prevent the formation of the grade-lowering blemish oil blotch. If parathion is to be employed, use 1.7 pounds of the 15 percent material or its equivalent in some other formulation per 100 gallons.

Soft Brown Scale Control: Soft brown scale is not controlled with parathion. In fact, the use of parathion where soft brown scale is established may result in increasing populations. Oil emulsion at the rate of 1.3 percent actual oil or 3 pounds of 25 percent wettable malathion per 100 gallons should give satisfactory results.

Rust Mite Control: Since lime-sulfur is toxic to tender foliage, the best material for post-bloom rust mite control is wettable sulfur. However, wettable sulfur cannot be combined with oil emulsion. If oil is used, it must be preceeded or followed by a sulfur spray or dust in not less than three weeks. Where sulfur is used with parathion, 5 pounds per 100 gallons is adequate, but 10 pounds is needed if wettable sulfur is applied alone.

Purple Mite and Texas Citrus Mite Control: The most effective material for purple and Texas citrus mite control during the post-bloom period is oil emulsion. Other miticides such as Systox, aramite, and ovex are less effective during warm weather, but may be used where oil emulsion is undesirable. Systox at 1.0 pint, ovex at 1½ pounds or 45 percent aramite at 2/3 pound per 100 gallons may be employed. Neither Systox nor aramite may be used with lime-sulfur or in other alkaline solutions. If oil is used for mite control, 0.7 percent actual oil is adequate.

Six-Spotted Mite Control: As mentioned above, six-spotted mite will not be a general problem this spring, but may be injurious in a few groves. Where it occurs, the miticides recommended for purple mite control should give good results if thoroughly applied. Lime-sulfur at 2 gallons per 100 gallons of spray is also effective, but is toxic to soft foliage. Regardless of the miticide, thorough coverage of all leaf surfaces is essential for good results because six-spotted mite is found primarily on the under surface of leaves where it is difficult to reach with a spray.

Mealybug Control: Mealybugs may be controlled with 1.7 pounds of 15 percent parathion per 100 gallons. Sprays for mealybugs are most effective before the fruit is set. After the fruit is set, mealybugs that have settled under the button of the fruit are not likely to be reached by the spray.

Melanose and Scab Control: Melanose may be controlled with a copper spray, either a neutral copper or copper sulfate and hydrated lime, applied 2 to 3 weeks after petal fall. For scab control, however, the copper spray must be applied earlier when about 2/3 of the petals have dropped.

For more detailed information refer to the 1957 "Better Fruit Program" or consult the Citrus Experiment Station at Lake Alfred or Fort Pierce.

Abandonment Of Florida Lime Marketing Agreement

The U. S. Department of Agriculture announced on February 13 its recommendation on proposals to amend the marketing agreement and order regulating the handling of limes grown in Florida. The decision is based upon evidence received at a public hearing held on December 10, 1956, at Homestead (Modello), Fla.

The principal amendments would:

(1) Permit only growers or producers having proprietary interest in 10 or more bearing lime trees to participate in the nomination of grower members of the committee;

(2) Provide for simultaneous meetings of groups of committee members at two or more places through the use of appropriate telephone communication;

(3) Authorize establishment of a reserve fund to finance certain program operations;

(4) Provide for handling of limes exempt from regulation so they can be used in marketing research and development projects;

(5) Authorize establishment of pack specifications and require packs of limes graded and packed in accordance with such specifications to be identified by appropriate labels, stamps, or tags; and

(6) Require handlers, in filing reports on the disposition of limes, to show the destination, by State, zone, or market area, for each lot of limes handled.

Persons desiring to file written exceptions to the recommended decision may do so with the Hearing Clerk, U. S. Department of Agriculture, Washington, D. C.

Copies of the decision are available in the office of M. F. Miller, Field Representative, Fruit and Vegetable Division, Agricultural Marketing Service, USDA, P. O. Box 19, Lakeland, Fla.

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We invite you to inspect our high quality — fast growing — citrus trees... **they're different!**

We have on hand, or will bud and grow for you, any variety, on any root stock, in any quantity. Many growers are now placing their orders for 1958 and 1959 delivery.

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American Agriculture and Stauffer Grew Up Together

Many of the growers now feeding America are the sons and grandsons of men who used Stauffer Agricultural Chemicals more than seventy years ago. Today *both* American Agriculture and Stauffer are *big business* . . . both have long since outgrown knee pants.

Following the simple formula of *personalized, local service* Stauffer has grown to be the largest producer of agricultural chemicals in our nation, with manufacturing plants strategically situated in 48 locations from coast to coast. Fully staffed Stauffer Research Laboratories provide *local help to growers . . . devise local formulations for local problems!*

Take full advantage of the extensive Stauffer facilities. There is a Stauffer Technical Service Man in your area, working with your local dealer. Both are ready to help you.

Remember, it actually costs less to do business with the leader in the field.

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The Citrus Situation

SUMMARY OF PRESENTATION TO
FLORIDA CITRUS COMMISSION
LAKELAND, FLORIDA

BY BRADLEY B. HAMMOND
MARKET RESEARCH CORP. OF AMERICA

General Economic Conditons

The national economy continued to set new records.

—Unemployment at a minimum.

—Personal income higher than ever before.

—Consumer spending at a new high.

—Total grocery store sales greater than at any time in history.

* * *

CITRUS PRODUCTS

1. Consumer purchases of Frozen Orange Concentrate during the past season lagged 4 per cent below the previous year. During the current season, however, volume was approximately 4 per cent above year ago levels. Retail prices were very close to those of the comparable months during the 1955-56 season.

2. Purchases of Fresh Oranges were 13 per cent below the comparable months in the 1955-56 season, with retail prices slightly above last year.

3. Canned Orange Juice retail prices were 4 cents a can higher than year ago levels with volume declining 21 per cent.

4. Approximately 4½ million gallons of Chilled Orange Juice were purchased by consumers during the first three months of the current season. The retail price of Chilled Orange Juice, per equivalent 6 oz. glass, was approximately 7 cents, while Frozen Orange Concentrate and Canned Orange Juice were approximately 4 cents and 5 cents respectively.

5. Fresh Grapefruit purchases were down sharply during the October-December period from the same months in the 1955-56 season, with substantially higher price levels in evidence.

6. There were only minor changes in the division of Orange product volume within the various types of outlets and by region. Chain stores continue to be responsible for approximately 50 per cent of Canned Orange Juice and Fresh Orange volume. During the past season families residing in the Northeast section of the country purchased Frozen Orange Concentrate at a significantly higher rate than the balance of the country. Although this region contains only 28 per cent of the U. S. population, it is responsible for 40 per cent of total Frozen Concentrate movement.

The farm population of the United States has been decreasing about 600 thousand a year since 1994. Farmers who remained on the land achieved record breaking harvests on about the same acreage and with 30 per cent less labor.

DIVISION OF HOUSEHOLD PURCHASES OF ORANGE PRODUCTS

By Outlet

	A&P, Safeway Kroger		Other Chains		Indep. & Other Outlets	
	Oct. '54 Sep. '55	Oct. '55 Sep. '56	Oct. '54 Sep. '55	Oct. '55 Sep. '56	Oct. '54 Sep. '55	Oct. '55 Sep. '56
Fresh	31%	31%	34%	35%	49%	49%
Frozen	59	60	56	57	37	38
Canned	10	9	10	8	14	13
	100%	100%	100%	100%	100%	100%

By Region

	Northeast		North Central		South	
	Oct. '54 Sep. '55	Oct. '55 Sep. '56	Oct. '54 Sep. '55	Oct. '55 Sep. '56	Oct. '54 Sep. '55	Oct. '55 Sep. '56
Fresh	36%	37%	41%	41%	42%	41%
Frozen	57	56	47	50	38	40
Canned	7	7	12	9	20	19
	100%	100%	100%	100%	100%	100%

	Mountain & Southwest		Pacific	
	Oct. '54 Sep. '55	Oct. '55 Sep. '56	Oct. '54 Sep. '55	Oct. '55 Sep. '56
Fresh	38%	38%	41%	41%
Frozen	49	49	48	51
Canned	13	13	11	8
	100%	100%	100%	100%

Better Fruit Program Now Being Distributed

The 1957 Better Fruit Program Spray and Dust Schedule published annually by the Florida Citrus Commission is now being distributed throughout the State.

Based on information furnished by the Florida Citrus Experiment Station, Agricultural Extension Service, State Plant Board, and various federal agencies, the spray and dust schedule provides information concerning the control of tree diseases as well as spray formulas and chemicals components.

The schedules are available at no cost through County Agents, Vocational Agriculture Teachers, and fertilizer and insecticide dealers throughout the state.

Schedules may also be obtained by writing direct to the Florida Citrus Commission at Lakeland, Florida.

Most falls result from unsafe acts such as rushing about unnecessarily, using make-shift ladders, running up and down the stairs, failing to wipe up spilled liquids, or overlooking small objects on the floor .

A telephone call like this is not too important perhaps . . . but for millions of us it demonstrates the handy help a telephone offers.

It's easy to take this marvelous convenience for granted in our daily life.

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PENINSULAR TELEPHONE COMPANY

Secretary of Agriculture Benson Praises Outstanding Progress And Policy Of Florida Agriculture...

Speaking before a large group of Florida citizens representing leading members of agriculture throughout the entire state at a dinner featured on "Agriculture Day" at the Florida Citrus Exposistion in Winter Haven on February 15th U. S. Secretary of Agriculture Ezra Taft Benson, received glowing tribute from U. S. Senator Spessard L. Holland, Governor LeRoy Collins and former governor Doyle E. Carlton who served as toastmaster.

Benson paid high tribute to the success of Florida growers in the development of agriculture in this state and praised them for their independent and progressive spirit.

Secretary Benson said: "The agriculture of Florida is an outstanding example of the progress that can be made through sound, forward-looking policy: Policy that leaves agriculture dynamic — not policy that freezes agriculture into yesterday's economic pattern."

He pointed out that in the past decade and a half, farm acreage in Florida has doubled, the livestock industry has made great strides. Florida-grown winter vegetables are "standard fare on millions of American dining tables."

"The growth of your agriculture," the Secretary said, "has been based on research and education, on good marketing and self-help through marketing agreements. It has not been based on direct price supports. And it is my firm belief that if you had tried to build your agriculture on price supports, you would not be in your present favorable position today."

He commented on Florida's record crop of oranges and large production of grapefruit. The fact that these bountiful harvests do not glut the market is due in part, he says, to research which produced the frozen concentrate industry.

He said the combination of effort between Federal and State Governments and the agricultural industry has promoted efficiency in agriculture, protected farm income and served both producers and consumers. He pointed to the inspection program carried out by Federal-State inspectors of fruit, the grade standards, the cooperative battle against the Mediterranean fruit fly.

"We are making progress," he said, "in this battle to restore the concept that responsibility for farm programs resides in the people — that government is merely the instrument for the application of joint effort."

"I feel we are slowly winning the battle all along the agricultural front," the Secretary said. He cited higher prices for farm commodities, increased net income, declining stocks in CCC hands and increased consumption at home and abroad.

To continue to progress, he said, "we must recognize . . . the basic errors which led to our present difficulties. He stated: "We are at the beginning of a new era in farm policy." Warning against inflation, which is "nobody's friend," he said the plain, hard facts about agriculture shows that we must improve our marketing and merchandising. "It's a task of pin-pointing educational campaigns toward those who can really use more of a particular product. We must know where the markets are. We must concentrate on the best selling points."

"The future of agriculture is as bright as we are determined to make it," the Secretary stated. "Here in this choice land God has blessed us with abundant natural resources. May we use them wisely in directing our efforts toward our constant goal — a prosperous, expanding, and free agriculture."

PASCO COUNTY HOME DEMONSTRATION WOMEN PROMOTING KUMQUATS

From the "kumquat center of the world" comes a bit of culinary news from Home Demonstration Agent Mary R. Stearns. These citrus fruits make excellent pie and are fine pickled. Marmalades, preserves and candy are other uses, the Pasco County home demonstration women have shown.

More than half the retail price of food goes for processing (various kinds of preparation for retail sale) and distribution. The United States Department of Agriculture says 8 cents out of every dollar spent for food pays for transportation alone.

AN OPEN LETTER

To all Grove Owners,
Production Men
& Caretakers
c/o The Citrus Industry
Florida, U. S. A.

Gentlemen:

If you are thinking of buying a new under-tree hoe, please do not buy anything before you see the all-new 1957 model of the SMITTY'S UNDER-TREE HOE. This hoe, which outperformed and out-sold all others during 1956, has been greatly improved and very soon will be available through a dealer in your area.

You'll be glad you waited for the 1957 SMITTY'S UNDER-TREE HOE, which can be used on even the smallest grove tractor and which is now being produced by a large and well known national manufacturer.

For futher information, please write or 'phone us at your convenience.

Sincerely yours,

FLORIDA FARM &
GROVE IMPLEMENTS, INC.
Exclusive Wholesale
Distributors of
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P. O. Box 38,
Mount Dora, Fla.
('Phone
Evergreen 2-5050)

Citrus Production Report As Of February 1, 1957

J. C. TOWNSEND, JR.,
AGRICULTURAL STATISTICIAN

FLORIDA

Prospects for Florida citrus remained unchanged from a month ago with oranges currently forecast at 94 million boxes (Temples 3.0 million, other early midseason 51.0 million and Valencias 40 million). In 1955-56, the State produced 91 million boxes of oranges (2.8 Temple; 48.7 million other early midseason and 39.5 million Valencias). Florida expects to produce 35 million boxes of grapefruit, 5 million tangerines, and 400,000 boxes of limes in 1956-57 which compares with 38.3 million, 4.7 million and 400,000 boxes respectively for 1955-56.

UNITED STATES

The total 1956-57 orange crop (including tangerines) is estimated at 139 million boxes — nearly 1 per cent more than last year and 17 per cent above average.

The Early and Midseason crop is estimated at 70.5 million boxes — 2 million more than last season. The estimate is down 200,000 boxes from last month as the result of a reduction in the Texas crop. The forecast for the Valencia crop is also down from last month because of lowered prospects in Texas. The estimate of 63.2 million boxes is 2 per cent less than last season, but 9 per cent above average. Total utilization of oranges picked to February 1 was 44.2 million boxes, practically the same as for the same period a year ago. The estimated crop of 5 million boxes of tangerines for 1956-57 is 300,000 more than last season. Production of grapefruit is expected to total 43 million boxes — a decline of slightly more than 2 million boxes from last year. Utilization of the 1956-57 crop amounted to 18 million boxes as of February 1 — 10 million for fresh use and 8 million for processors. Last year nearly 19 million boxes were used as of the same date, with 11 million used as fresh and 8 million taken by processors. The California lemon crop of 13.6 million boxes is 8 per cent greater than last year and 3 per cent above average. Utilization of lemons to Febraury 1 amounted to 1.8 million boxes compared with 2.2 million to the same date a year ago.

In the Florida citrus area, temperatures ranged from near freezing in early January to the mid-80's by the end of the month. Low temperatures caused only a small amount of damage to the fruit. Following the cold weather, showers came to most of the area, but there is still a shortage of moisture. High temperatures at the end of January forced buds, and resulted in some open blossoms. During January, harvest of Early and Midseason oranges reached an all-time high. Up to February 1, canners had taken 25.4 million boxes of oranges and 12 million boxes had gone for fresh use — a total of 37.4 million boxes utilized. This is somewhat less than last year when 38.4 million boxes had been picked during the comparable period of time. Utilization of Florida grapefruit totaled 15.2 million boxes to February 1 with 8.1 million boxes used fresh and 7.1 million boxes going to processors. The comparable totals a year ago were 9.2 million fresh and 7.2 million processed. Tangerines are now in the "clean-up" stage with 4 million boxes picked — 3.1 million for fresh

CITRUS FRUITS

PRODUCTION (Thousand Boxes) a/

	Average 1945-54	1954-55	1955-56	Ind. 1-1-57 1956-57
ORANGES				
Early and Midseason				
FLORIDA	36,538	49,500	48,700	51,000
Temples	1,322	2,500	2,800	3,000
California	15,742	15,330	15,170	14,500
Texas	1,732	1,100	1,150	1,300
Arizona	514	510	440	550
Louisiana, All	238	175	195	115
TOTAL 5 STATES	55,988	69,115	68,455	70,465
Valencias				
FLORIDA	29,890	36,400	39,500	40,000
California	26,629	24,090	23,600	22,000
Texas	924	400	450	400
Arizona	507	620	710	750
TOTAL 4 STATES	57,950	61,510	64,260	63,150
TANGERINES				
FLORIDA	4,660	5,100	4,700	5,000
GRAPEFRUIT				
FLORIDA, All	32,690	34,800	38,300	35,000
Seedless	16,170	20,500	20,600	20,000
Other	16,520	14,300	17,700	15,000
California, Desert Valley	985	920	830	800
Other	1,597	1,500	1,580	1,400
Texas, All	10,000	2,500	2,200	2,800
Arizona, All	2,991	2,470	2,370	3,000
TOTAL 4 STATES	48,263	42,190	45,280	43,000
LIMES				
FLORIDA	261	380	400	400
LEMONS				
California	13,146	14,000	12,600	13,600

a/ Includes the following quantities not harvested on account of economic conditions: 1955-56, California Navel and Miscellaneous Oranges 377,000; Valencias 200,000; Florida Tangerines 200,000; Grapefruit California Desert Valley 3,000.

SOUTHERN DOLOMITE
PALMETTO, FLORIDA
PHONE: BRADENTON 2-1411

use and 0.9 million for processing. Last year, 3.1 million boxes for fresh use and 0.6 million for processing had been picked during comparable period.

Rains in California broke the drought which had prevailed over most of the State for several months. The rains commenced during the first week in January and continued intermittently throughout the month. Temperatures frequently dipped to or near the freezing point during January, but losses were confined to isolated areas, rather than any general damage. Benefits from the rains more than offset damage from cold weather. In central California, more than 60 per cent of the Navel crop had been harvested by the end of January, but in southern California, less than 10 per cent of the crop had moved. Size of fruit, especially in southern California, was helped by the rains. California Navels and miscellaneous oranges are estimated at 14.5 million boxes. Although cold weather caused some damage to the California Valencia orange crop, benefits from the January rains were offsetting through improved sizing, particularly in southern California. Estimated production remains unchanged from last month at 22 million boxes. Harvest of lemons has been slow to date because of small sizes. Improved moisture conditions are helping the fruit to size. Cold weather resulted in the loss of small-sized fruit in some locations, while other areas show no signs of damage. Harvest of grapefruit in the Desert Valleys has been slow. Fruit sizes are still smaller than normal in many groves, but recent precipitation has helped the crop. Movement from the Desert Valleys is expected to be moderate until heavy volume is reached in May and June. Grapefruit from other California areas will not commence moving until April or May The crop in these other areas was also helped by rains. Although cold weather occurred, little frost damage has appeared.

In the Texas citrus area, some moisture was received during last January, but the amount was insufficient to help sizing of the fruit to any appreciable extent.

In Arizona, harvest of Navel and miscellaneous oranges was virtually complete by February 1, and harvest of Valencias is about ready to begin. Cool weather in January may retard sizing of tha Vlencias.

ISLE OF PINES CITRUS

(Continued from Page 9)

over $5.00 per box to realize any profit. As New York is the principal market for the Isle of Pines grapefruit, the fruit is loaded on barges and taken to Havana where it is reloaded on board ship. This is very costly, but necessary as the Isle of Pines has no deep water harbor.

"The expense of modernizing the operation would be prohibitive for such a small tonnage. All of the fruit is not packed through one house, as there are several packing houses on the Island. Their shipping season runs for about four weeks, being the latter part of August, and the first part of September. There are two reasons for the shortness of their shipping season. First, of course, concerns the maturity of their fruit. They have to push the fruit to get it mature enough to pick by the middle of August. On the first of August, their fruit was still completely green, with no sign of a break in color. They haven't used arsenic, as they said that Cuba had a law against its use. The other reason is the fact that Florida grapefruit starts moving into the markets the last of September. As soon as it is rumored that Florida is picking, the Isle of Pines growers report that their sales drop off. The cargo ship sails once a week from Havana, so this means that they are shipping about 10,000 boxes each week for a four or five week period.

"In our good neighbor policy, it is natural that the United States should want to help the growers of the Isle of Pines help themselves, but not to the detriment of the citrus industry here. No help in restrictions is feasible under the present set-up. One way to help is to send a competent production man to the Isle of Pines to confer on all of the problems of disease and insect control. The grove caretakers seem to have a good grasp of their problems, so it would be more or less a matter on consultation and mutual agreement as to the best course of action to assure a good quality grapefruit at minimum expense. Then, the judicious use of arsenic would be of great benefit. It would mean earlier movement of the fruit and less likelihood of running into competition with the early movement of Florida grapefruit. There is a very good possibility that the Cuban government would relax their restrictions, as to the use of arsenic, to conform to the regulations imposed by our Department of Agriculture. These are problems which must be solved if the Isle of Pines grapefruit grower is to continue to prosper."

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For many years a favorite and dependable source of soluble magnesia for Florida crops. Used extensively in fertilizer mixtures for citrus crops and vegetables. Especially useful and economical for direct application where only magnesia is required.

In Florida, magnesium is now classed as a primary plant food together with nitrogen, phosphorus and potash.

The recommendations of the Florida Citrus Experiment Station at Lake Alfred, stress the need for large application of magnesium for Citrus in soluble form and state that it is usually applied as a Sulphate.

Be sure that your fertilizer manufacturer includes **EMJEO** in your mixtures as a dependable source of soluble magnesium.

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Reports Of Our Field Men . . .

SOUTH HILLSBOROUGH AND MANATEE COUNTIES

J. D. Toll

Mild weather during the first half of February brought out an early flush of growth in most groves. At this time, Feb. 15th, groves are white with bloom and in a favorable condition following the spring fertilizer application and some rainfall. Growers have begun to unbank and fertilize young trees.

The above normal warm weather has produced a rapid growth in vegetable crops and in the case of some headed vegetables such as lettuce, cabbage and cauliflower the warm temperatures have been harmful.

Watermelon growers are generally pleased with their crops. Conditions tending toward good production so far this season appear more favorable than during the same period of 1956.

Now that the threat of cold weather and frost is almost past many cattlemen will be fertilizing their pastures this month. With promised rains materializing just at this time the fertilized pastures will gain good carry-over strength for the summer.

In the Plant City area the strawberry crops are just about over. Peppers are the predominate spring crops in that section.

HIGHLANDS AND POLK COUNTIES

J. K. Enzor, Jr., & R. E. Lassiter, Jr.

We are experiencing an abnormally early spring flush. Most groves at the time of this writing are in a state of full bloom or else ready to bloom within the next week. This has made some adjustment necessary in applying spray applications since it is not good to spray on young succulent growth.

Rust mite populations are at a fairly low ebb at this time and, generally speaking, purple mite are not too serious. Where rust mite or purple mite are present only Ovex or Aramite and wettable sulfur should be used. However, we would like to say again that it is not wise to spray on very young growth.

Due to the recent rains over most of this area most growers have completed their top dresser fertilizer application. Moisture is fairly good at this time and especially good as compared to a year ago.

It has been our observation that Pineapple oranges and Duncan grapefruit do not seem to have the abundance of bloom that is found on the other varieties. It will be interesting to watch the fruit set on these varieties this season.

EAST HILLSBOROUGH AND PASCO COUNTIES

E. A. McCartney

The warm weather has shown up the damage to fruit trees caused by the cold weather in January and in some sections of this territory it was considerable, but if the wind had not changed when it did we could have been in for bad trouble. As it was there was small damage to fruit.

Trees have been blooming for the last 10 days. We have been top dressing some groves since the 10th of February depending on moisture. Some groves are very dry and will not use a top dresser but will put on the summer application of fertilizer early.

Melons are responding to the warm weather. Some growers are dusting here in Hillsborough and Pasoc Counties.

Pastures are being fertilized and look exceptionally well considering the cold weather we have had. We need rain and plenty of it to set this new crop of citrus.

NORTH CENTRAL FLORIDA

V. E. Bourland

We are still having dry weather with changeable temperatures. Irrigated groves are further advanced in growth, but most non-irrigated ones are putting out growth and bloom in spite of the dry weather. I think that it is a guess how much of this bloom will stick when we get some good rains. Lots of growers are applying top dresser of some form, and still busy spraying for different insects. Young trees are being unbanked and fertilizer being applied. The trees that have been set in the last year have had to be continually watered, and the grower has had quite an expense since it has been over such a long period of time.

Most of the pastures are beginning to green up since the effects of frost.

Melon growers have had some trouble getting their plants up, but otherwise are very pleased.

SOUTH POLK, HIGHLANDS, HARDEE, DeSOTO AND SARASOTA COUNTIES

C. R. Wingfield

Warm weather and a little moisture in January and up to this writing (Feb. 17th) has caused citrus trees to flush a growth and bloom. A little early to tell how good the bloom will be but if we could have another shower with continued warm weather I believe it will be a good one. Growers have been busy with top dresser designed to meet their particular need. Young non-bearing trees have begun their growth and are being fed balanced fertilizers to support their growth. Feed these often as the growing season progresses.

Moisture continues to be vital in most areas and some have found it necessary to start their irrigation. It is very important at this time of growth to have moisture to gain good normal growth.

The larger part of the midseason fruit has been moved and we witnessed a few weeks ago a heavy droppage. This condition appears to be better now and valencias are holding well.

Vegetable growers are busy with their plantings of tomatoes and cucumbers. Watermelons appear to have weathered what we feared would be a real cold and are growing nicely.

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Uncle Bill Says:

They was a feller once who said that he jist wouldn't drink water 'cause he'd seen how iron was inclined to rust when treated with too much water, 'n he knew his stomach wasn't as strong as iron . . . but they was a lot of us growers made happy this past week when we had purty general rains over the state . . . 'n certainly us citrus growers who has plenty of reason to gripe about the long continued drouth was made happy to see our trees perk up as a result of these good rains . . . was a big relief, too, to be able to lay off irrigatin' fer a spell.

Seems like most growers is gettin' reasonably good prices fer their fruit this season, with purty fair prospects fer prices continuin' to hold up well through the Valencia season . . . so fer as prospects is concerned this ought to be a durned good season fer citrus folks.

They is still problems which has got to be licked 'n it seems like some of 'em is sort of tough, but all through the history of citrus growin' in Florida they has been problems . . . some of 'em mighty tough . . . but somehow or other us growers has managed to lick practically all of 'em.

Like most other folks in business we have our difficulties among ourselves 'n sometimes we have a hard time gittin' together on things but in the long run we manage to come out on top . . . only warnin' we might give is fer us not to git to feelin' too cocky about own ability to lick everything without heedin' the advice of folks who know as much or maybe more about citrus problems than we do.

One thing is fer sure today, jist like always, high quality fruit is always worth more money on the market than fruit that ain't had the care and food ingredients necessary to bring its quality up to a point where the consumer would be pleased with it . . . and the best way we know to produce real Quality Fruit is to use adequate amounts of fine Lyons Fertilizers.

NOTES OF THE TRADE

GEIGY AGRICULTURAL CHEMICALS APPOINTS SALES AGENTS

Geigy Agricultural Chemicals announces the appointment of Ashcraft-Wilkinson Company as sales agents in Florida for their Sequestrene Iron Chelates used in the fertilizer industry.

Geigy has held a leading position in the field of metal chelates for agriculture since the introduction a few years ago of their Sequestrene NaFe Iron Chelates for the correction of iron cholorosis in citrus.

During the past year, Geigy has introduced Sequestrene NaFe Iron Chelate Pellets. This new pelletized product permits application of chelate-fertilizer mixtures with the usual fertilizer spreaders and yet does not cause burning of citrus fruit and foliage which often accompanies applications of ordinary powdered chelates.

Ashcraft-Wilkinson has been a leading supplier of raw materials to the fertilizer industry for many years, and the addition of these new and outstanding Sequestrene Iron Chelates represents an important supplement to their product line.

Geigy will continue to maintain stocks at the Robertson Warehouse in Orlando and Flag Sulphur and Chemical Company in Tampa, Florida.

SHIRRIFF-HORSEY CORPORATION DECLARES DIVIDENDS

The Board of Directors of Shirriff-Corporation Ltd., of Plant City, Florida and Toronto, Ontario, following a meeting in Toronto, has announced the declaration of dividends on the new 5½ Per Cent Cumulative Convertible Preferred Shares, Series A as well as the Common Stock of the Company.

The dividend on the preferred issue is payable at the rate of 5½ per cent on the $25 par value of the shares for the quarterly period ended March 1. Payment will be made March 1 to shareholders on record on February 22nd.

The dividend on the Common Stock will be paid at the rate of fifteen cents per share on March 15th to shareholders of record on February 22nd.

SOUTHERN NITROGEN COMPANY NOW IN OPERATION

Southern Nitrogen Company, Inc., of Savannah, Georgia, is now in production! The new $14 million plant is now producing ammonia, and will be producing nitrogen manufacturing solutions in March and solid "Dixie" Ammonium Nitrate in April.

This achievement is of particular significance to Georgia and the entire Southeast because, for the first time, Southern farmers have a dependable local supply of low cost nitrogen at all times. Equally important is the fact that nitrogen is the best tool which the southern farmer can use to get bigger yields and higher income on his remaining allotted acres.

The official start of production was celebrated at the new Savannah plant in a manner which would make an onlooker feel that the South was really "rising again!" The plant area was decorated with Confederate flags and red, white and blue bunting, and the martial strains of Dixie and other southern favorites filled the air as pretty southern belles dressed in confederate caps and appropriate costumes mingled throughout the plant and handed out big red apples . . . a Southern Nitrogen symbol of achievement . . . to all visiting officials and company and plant employees.

Southern Nitrogen Company is the only nitrogen producer located deep in the heart of the Southeast — in Dixie. Agricultural leaders throughout the area have hailed the location and products of Southern Nitrogen as helping the Southeast enter a new era. Abundant, low-cost nitrogen, the stuff that gives plants the green light to grow, is needed in ever-increasing quanities by the South. Because Southern farmers can soon buy from their own nearby source, prices within a 300-mile radius of Savannah have declined as competitors from outside the South have been forced to "equalize" freight. "This freight savings to Southern farmers will amount to millions", said Dallas Cantwell, Assistant General Sales Manager, "and we're happy to be responsible for this."

The new plant will manufacture nitrogen solutions for sale to fertilizer manufacturers . . . (nitrogen is the "4" in 4-12-12 fertilizer) . . . and DIXIE brand prilled ammonium nitrate, the cheapest form of solid nitrogen for the farm.

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Write for Details or Phone

Hollywood 2-2808

CITRUS ESTIMATE — FEBRUARY 1, 1957
(Released by U. S. Department of Agriculture, February 11, 1957)

	ESTIMATED FOR 1956-57			
	(At Oct. 1)	(At Dec. 1)	(At Jan. 1)	(At Feb. 1)
ORANGES				
U. S., All	/1	135,915	133,915	133,615
Florida, All	95,000	95,000	94,000	94,000
Early and Midseason	51,000	51,000	51,000	51,000
Valencias	41,000	41,000	40,000	40,000
Temples	3,000	3,000	3,000	3,000
California, All	/1	37,500	36,500	36,500
Early and Midseason	14,500	14,500	14,500	14,500
Valencias	/1	23,000	22,000	22,000
Texas, All	2,300	2,000	2,000	1,700
Arizona, All	1,320	1,300	1,300	1,300
Louisiana, All	115	115	115	115
GRAPEFRUIT				
U. S., All	/1	43,200	43,200	43,000
Florida, All	35,000	35,000	35,000	35,000
Seedless	21,000	21,000	20,000	20,000
Other	14,000	14,000	15,000	15,000
California, All	800 /2	2,900	2,200	2,200
Texas, All	3,500	3,000	3,000	2,800
Arizona, All	3,000	3,000	3,000	3,000
TANGERINES				
Florida	5,200	5,000	5,000	5,000
Total U. S. Citrus /4	/3	184,115	182,115	181,615
Total Florida Citrus /4	135,200	135,000	134,000	134,000

/1 Estimate not available until Dec. 10. /2 Desert Valley only.
/3 Total on Dec. 10. /4 Excluding Lemons and Limes.

Research Developed Attractants Essential In Medfly Eradication

Last-minute discovery of a synthetic material to replace angelica-seed oil in insect traps used to check on the progress of Mediterranean fruit fly eradication has helped assure continued success in the all-out effort to rid Florida of this destructive fruit pest, the U. S. Department of Agriculture says.

Research skill, hard work, and plain good luck have all been important in the favorable results achieved in the campaign against the Medfly, now entering its tenth month. The insect's numbers have been drastically reduced in all Florida counties that were infested, and Department insect-control officials believe that the final clean-up stage in the eradication program is beginning.

Credit for major assists in the campaign is due, the Department says, to opportune findings by USDA researchers that made new insect attractants available for use against the Medfly.

First of these was the discovery — only a few weeks before the insect was found in Florida last April — that oil of angelica seed is an excellent attractant for male Medflies. Used in special fly traps, this oil made it possible to determine quickly the extent of Medfly infestations, and so effectively guided the control measures taken against this pest

A second stroke of good luck — also made possible by intensive research — was discovery of a synthetic attractant to replace angelica seed oil in the survey traps. This finding came just when supplies of the relatively scarce seed oil began to dwindle. A development program was quickly organized under which the Carbide and Carbon Chemicals Company of New York City began making the synthetic attractant in quantity on a "crash" basis. First deliveries of the commercially produced synthetic were made in Florida in mid-December, shortly before thousands of Medfly traps would have run out of the natural attractant.

Success of the large scale aerial spray program against the Medfly also depended upon timely development by USDA entomologists of an attractant bait material, made from yeast, which was mixed with the insecticide malathion to provide an effective bait spray, deadly to Medflies but harmless to humans in the concentrations used. Because of this yeast attractant (enzymatic protein hydrolysate), the spray itself does not have to hit the insects. They are lured to the bait, which is sprayed with the insecticide on vegetation in the infested areas.

Although Medfly eradication in Florida has depended mainly on large scale aerial spraying, done by both multi-engined aircraft and light planes, it also included use of ground-operated mist blowers to apply baited malathion where aircraft spraying was impractical, and application of granulated insecticide (dieldrin) to the soil under known host trees to destroy insects entering or leaving the soil.

Effectiveness of the spraying program depended on rapid and accurate determinations of the presence of the Mediterranean fruit fly in particular areas. This was made possible by the use of some 50,000 insect traps, baited with angelica seed oil (and later with the synthetic substitute material). Lured into the traps by the attractant, made Medflies revealed the presence of their kind. Results of trapping surveys told the State and Federal entomologists conducting the campaign where to concentrate aerial and ground sprayings with malathion to kill Medflies of both sexes still at large.

Less than a month before the Medfly outbreak developed in Florida, workers under L. D. Christenson at USDA's Fruit Fly Research Laboratory, Honolulu, Hawaii, discovered that angelica seed oil, normally used in liqueurs and perfumes, was an effective attractant to made Medflies.

Derived from the seeds of a plant related to the carrot, this oil is extracted largely in Belgium. It sells normally for about $50 a pound, and annual use in the United States for ordinary purposes seldom exceeds 2 to 3 pounds. World production of this oil has been limited to about 600 pounds or less a year.

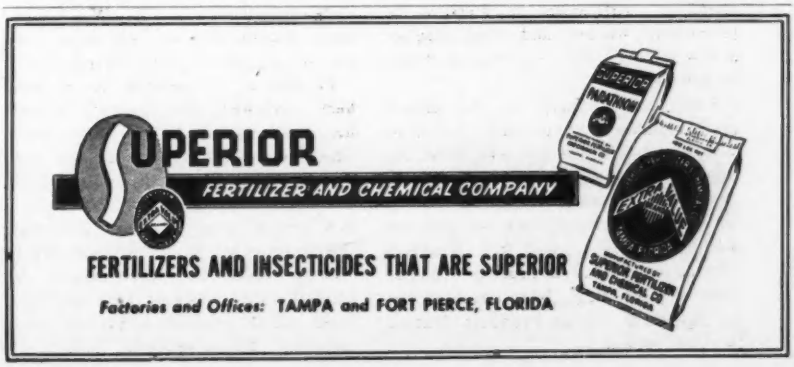
With the limited quantity available and emergency demand for use in the fruit fly eradication program ranging up to 200 pounds a month, the price ultimately soared to more than $200 a pound.

At the height of concern over the rapidly dwindling stocks of angelica seed oil, S. I. Gertler, chemist at USDA's Agricultural Research Center, Beltsville, Md., discovered a series of new acid esters, which tests in Hawaii showed would attract the Medfly. Of these, the isopropyl ester of 6-methyl-3-cyclohexene-1-carboxylic acid, proved best. It was believed "ENT-21,478," to distinguish it from a host of other synthetics being developed and tested, and was first made by P. F. Barthel at the Beltsville laboratory in the substantial quantities needed for field testing.

The synthetic, though not as effective as angelica seed oil, works better than other materials tried so far. And it has the advantage of a more favorable price per pound than the seed oil, offset in part by the need to use more of it per trap. It also has greater uniformity and stability than natural attractants usually possess, since the material can be reproduced to exact formula.

Discovery of the attractant properties of both angelica seed oil and the synthetic ENT-21,478 was a result of continuing efforts by USDA research entomologists to test many different natural and synthetic substances for possible value in insect control. Experience in using attractants against the Medfly, and also against other serious insect pests — including the oriental fruit fly and the melon fly — indicates that use of these materials with suitable insecticides may open up new possibilities for more effective insect control.

The search for a better synthetic insect attractant than ENT-21,478 goes on. All possible compounds of the basic materials from which this synthetic was derived are being developed and tested along with com-



pounds of other materials of an entirely different nature. The chemists are also breaking down angelica oil in an effort to determine the chemical nature of the actual attractant contained in the oil.

Why certain natural materials and chemical compounds attract insects is far from being fully understood. Some compounds are known to be sex attractants and others lure insects because they provide food or their scent suggests food. Study of these and other reasons for the attractiveness of certain chemicals to insects may lead to development of more effective attractants that will greatly aid insect control and eradication.

CITRUS RESEARCH OF WINTER HAVEN LABORATORY PRESENTED IN BIBLIOGRAPHY OF PUBLICATIONS

Evolution of the citrus processing industry is outlined in bibliography of publications of the U. S. Citrus Products Station, Winter Haven, Fla., which is now available for distribution. The Citrus Products Station, established in 1931 to meet the needs of a growing citrus industry for research on processing, is a field station of the Southern Utilization Research Branch of the Agricultural Research Service, USDA.

The first paper by the Station, in 1933, discussed flash pasteurization and deaeration of citrus juices, and papers for the subsequent ten years were devoted chiefly to problems of canning single-strength orange and grapefruit juice.

Papers listed describe the development of frozen citrus concentrates, and later publications show a trend toward microbiology and fundamental chemistry of citrus products, particularly concentrate. Throughout history of the station, work has been carried out on products of other citrus fruits, such as tangerines and limes; recovery and utilization of by-products; utilization or disposal of processing wastes, and utilization of a few of the other subtropical fruits of the area.

Reprints of many of the papers are available without cost; in cases where reprints are not available, the papers can be located through the literature reference. Single copies of the bibliography may be obtained without charge from the Southern Utilization Research Branch, 1100 Robert E. Lee Bldg., New Orleans, La., or the U. S. Citrus Products Station, Winter Haven.

Researchers Study Nematodes

Two hundred agriculturists met in New York recently to hear what science has found out about agricultures' most recently discovered enemy — the nematode, a microscopic worm that destroys over one-tenth of the crops American farmers grow each year. Nematode damage runs to one billion dollars a year, according to estimates by leading nematologists.

The sessions, first of their kind ever held, were sponsored by Shell Chemical Corporation to bring the latest scientific information on the damage and control of nematodes to agriculturalists.

Until the early 1940's, agricultural scientists thought most nematodes were harmless. Meanwhile, nematodes sapped the vigor from fruit orchards, laid waste groves of citrus trees, banished sugar beets from ideal beet land and drastically cut production of Long Island potatoes. The damage they caused was ascribed to "worn out soil" or "tired land."

The identification of the actual culprit created a new science — nematology — and a research program that had to start from scratch. Researchers have since been able to identify over one thousand different species of nematodes, and the list grows each year. Some of the species attack only one plant, others attack more than 1,700 different plants, crops, flowers and trees alike. Scientists found that some types of nematodes will die in a year in an unplanted field, but others — called cyst nematodes — can hibernate in the ground for more than 30 years.

Some of the leading scientists who are working on the various phases of research appeared on the nematode workshop program. They include Dr. A. L. Taylor, head of nematology research for the U. S. Department of Agriculture, Dr. M. T. Hutchinson, Rutgers University, Dr. W. R. Jenkins, University of Maryland, and Dr. W. F. Mai, Cornell University.

In part of the session, panel members reviewed the methods science has used to try to stop nematodes. They reported that one of the most effective means found so far is the use of soil fumigants. Previous to the development of such chemicals, the only effective method of control was to rotate into other crops. Soil fumigation is reported to have multiplied cotton production by ten, sweet potatoes by seventeen, and other garden crops by nearly as much. They have restored to use marginal and abandoned land.

USDA PROPOSES STANDARDS FOR CONCENTRATED GRAPEFRUIT JUICE

Issuance of United States Standards for Grades of Concentrated Grapefruit Juice for Manufacturing was proposed recently by the U. S. Department of Agriculture. These standards, first to be proposed for the product, were developed at the request of processors and handlers.

The propesed standards apply to concentrated grapefruit juice which has been preserved by canning, freezing, the addition of approved additives, or by any other suitable commercial method. They provide for commercial grades A and C for manufacturing.

Provision is made for a product which has been concentrated to any suitable degree; however, before applying the grade standards the product is reconstituted to a Brix of between 10.5 and 11.5 degrees. The Brix-acid ration requirement for Grade A is not less than 5.5 to 1, and for Grade C not less than 5 to 1.

Interested persons have until March 11, 1957, to submit views and comments on the proposed standards to the Fruit and Vegetable Division, Agricultural Marketing Service, U. S. Department of Agriculture, Washington, D. C.

Spuds Johnson says that good nutrition will help add life to years, not just years to life.

Classified Ads

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